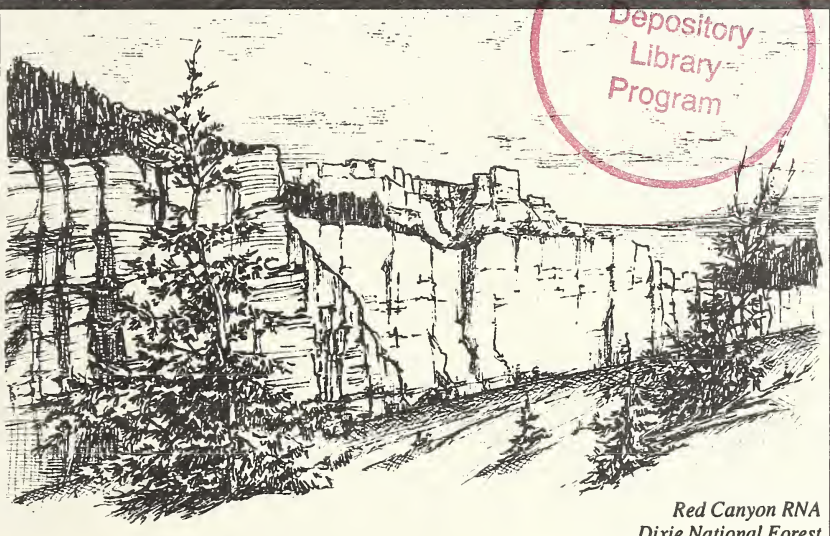
Research Natural Areas

A Living Library

The Vital Role of Research Natural Areas
on National Forests in the
Northern Rockies and Intermountain West



Red Canyon RNA
Dixie National Forest

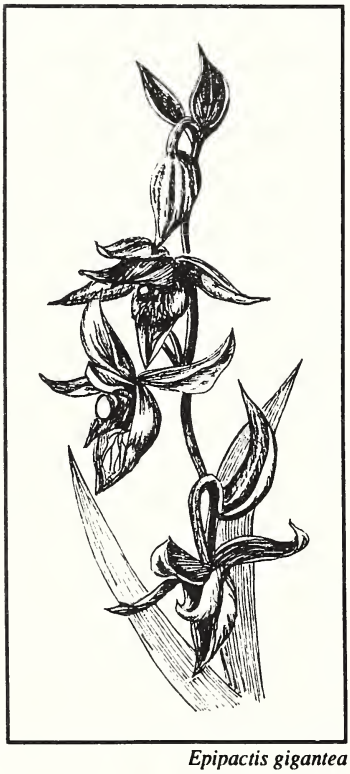
Research Natural Areas

are lands within the National Forest System that are permanently protected as places to conduct research and monitoring, to maintain biological diversity, and to foster education. Think of a system of RNA's as a library and each individual natural area a book. Here, scientists can "read" the lives of trees, wildflowers, soils, animals and landforms to learn how nature works. Research Natural Areas provide a reference library to help us answer questions about our ecosystems.

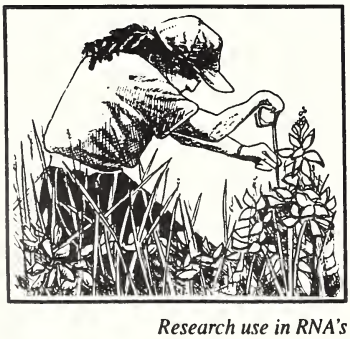
The doors to learning are wide open . . .

USDA Forest Service
Intermountain Research Station
Intermountain Region
Northern Region

Platanthera praeclara



Epipactis gigantea



Research use in RNA's

A Catalog of the Land

Library users depend on a complete, organized catalog for finding information. Research Natural Area users, too, depend on a catalog system—an inventory of plants, birds, mammals, insects, and soils within RNA's—to conduct informed research.

Processes are cataloged, too. Scientists establish monitoring sites within RNA's and carefully record information to measure environmental change over years, even centuries. With such information we can begin to understand, for example, when drought is part of an established cycle and when it suggests a shift in global climate.

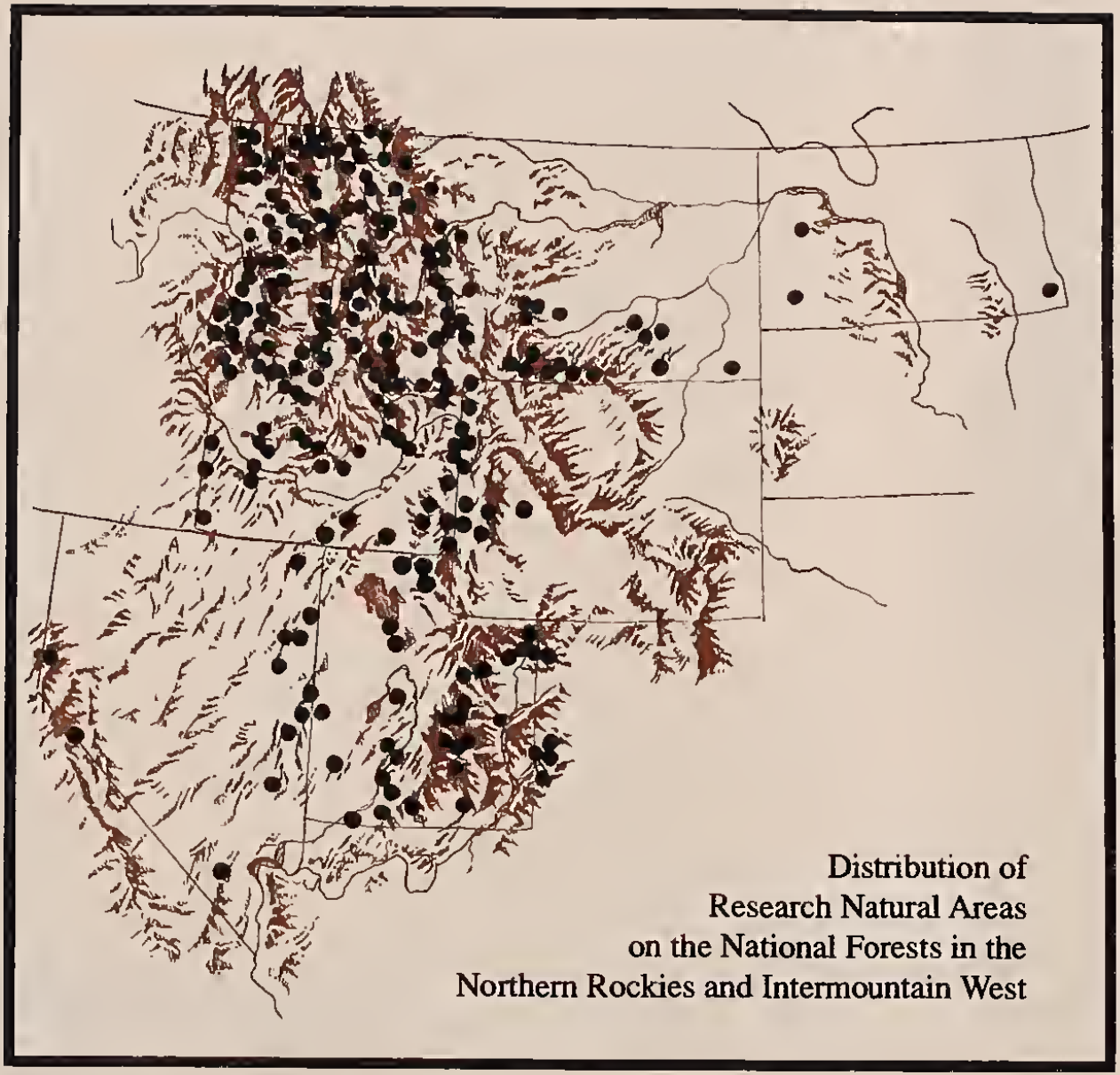
Reference and History

Research Natural Areas provide reference points that we can use to measure the structure and function of ecosystems. They serve as history books to help us understand the events that shaped our current condition.

Research Natural Areas help to define the ranges of natural variability and provide managers with a clearer understanding of natural processes at work in the larger landscape. They provide protected sites for collecting long-term data that can be used as an early warning system for environmental problems. Examining RNA's over time helps us understand how ecosystems work.

Familiar and Rare

Just as the best libraries harbor rare collections as well as a variety of popular literature, so an RNA system contains both the lands that are representative and lands that are rare. An RNA may contain a familiar cottonwood community along a river reach, habitat for a rare orchid, or an ancient peat bog with a record of the millennia layered in its sediment.



Distribution of
Research Natural Areas
on the National Forests in the
Northern Rockies and Intermountain West

Opening the Reference Book

Research Natural Areas provide us with the opportunity to pose questions and search for answers. Ongoing research and management include:

• **Effects of fragmenting forests:** Biologists contrast the birds within Tepee Creek RNA with those in adjacent logged forests on the Idaho Panhandle National Forests. Information will help managers consider the effect of habitat fragmentation when planning timber harvests in the region.

• **Maintaining healthy rangelands:** Elk Knoll RNA may look like an ordinary grassland, but this piece of Utah's Wasatch Plateau supports a relict tall forb community. Understanding the ecology of this native plant community has been vital to improving management of adjacent rangelands.

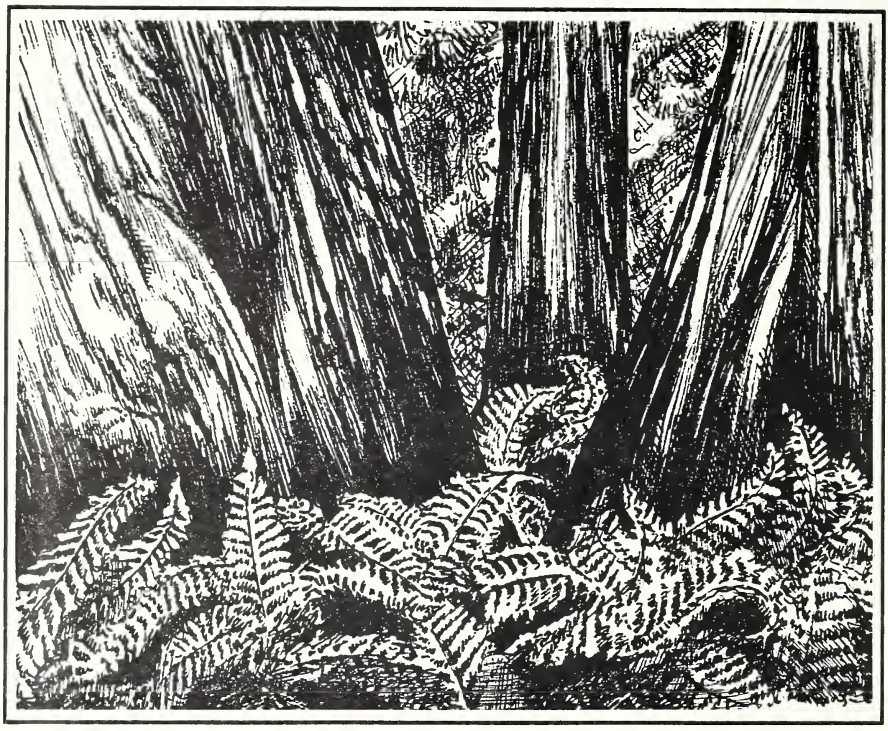
• **Gene banks for tree ancestry:** The Northern Region Genetics and Tree Improvement Program relies on RNA's throughout the region as permanent gene banks for sampling tree ancestry. Genetic changes in ancestral check populations provide a reference point for assessing genetics of actively bred commercial trees.

• **Conserving rare plants:** The Aquarius RNA on the Clearwater National Forest is a relict rain forest from a wetter, warmer era. It serves as a control area for monitoring the effects of timber harvest on rare plant populations elsewhere in northern Idaho.

• **Detecting environmental change:** Several RNA's on the Salmon and Challis National Forests of Idaho provide permanent plots for monitoring lichens and mosses. Information from these sites has contributed to our understanding of atmospheric chemistry and global change.

• **Designing effective prescriptions:** A prescription for salvage logging following a 1992 fire on managed forest land came directly from studying the natural fire conditions in the Elk Creek RNA on the Nez Perce National Forest in Idaho.

• **Restoring natural processes:** On the Sawmill Creek RNA of Montana's Bitterroot National Forest, managers are controlling weeds and returning fire to this ponderosa pine and bunchgrass ecosystem. Learning how to restore natural processes is an increasingly important management need on adjacent forests. Similar work is occurring on the Dry Mountain RNA of Montana's Deerlodge National Forest, where researchers are prescribing burns and monitoring the response of the grassland community to fire.



Aquarius RNA, Clearwater National Forest

Managing the Library and Stocking the Shelves

The Research Natural Area program has worked for more than 60 years to establish areas that represent the variety of ecosystems, communities, and processes that exist on National Forest System lands. Gaps still exist. The task of building this library continues with increasing knowledge and the identification of new representative sites.

Once an RNA is designated, managers develop a plan to maintain or enhance the site's natural processes and special features. Sometimes the long-term effects of fire suppression or invading pests and weeds make it necessary to actively manage the site to restore its natural condition and processes.

A Nationwide System

The Forest Service, in collaboration with State and other Federal agencies, has established a national network of natural areas that represents a spectrum of ecosystems across the country. Scientists can cross-reference information in RNA's, National Parks, Wilderness Areas, private nature preserves, botanical areas, and State heritage areas.

Beginning in 1935 with the designation of Tepee Creek RNA on the Idaho Panhandle National Forests, the Northern and Intermountain Regions of the Forest Service have established or proposed 250 RNA's. This vast natural library spans lowland forests to alpine meadows, and bogs to grasslands.

Using the RNA Library

The Forest Service designates Research Natural Areas to be protected forever for long-term monitoring, research, education, and conservation of biological diversity. In places where intrusion will not disrupt natural values, the Forest Service encourages the participation of scientists, educators, volunteers, and others to:

- Inventory birds, wildflowers, butterflies, and other natural features
- Conduct monitoring and research of natural processes
- Assist with seasonal stewardship activities
- Identify new areas for research, teaching, and conservation
- Participate in natural areas education activities

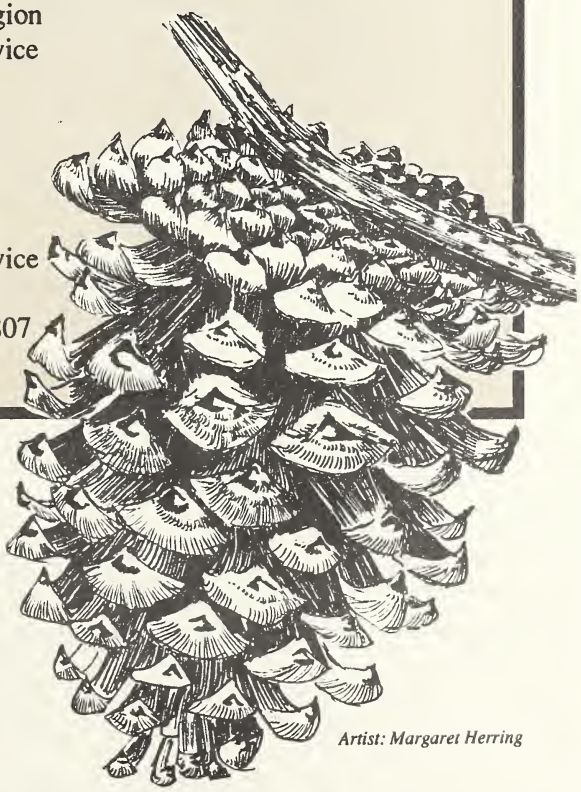
For more information: Contact the Natural Areas Program office for information and permission for use:

The Natural Areas Program
USDA Forest Service
Intermountain Research Station
P.O. Box 8089
Missoula, MT 59807
(406) 542-4173 or (406) 542-4150

Information may also be obtained from the following offices:

Intermountain Region
USDA Forest Service
324 25th Street
Ogden, UT 84401
(801) 625-5596

Northern Region
USDA Forest Service
P.O. Box 7669
Missoula, MT 59807
(406) 329-3511



Artist: Margaret Herring